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PID/OSS-472/65
8 February 1965

MEMORANDUM FOR: Chief, Photographic Intelligence Division, CIA

FROM : [redacted]

SUBJECT : Trip Report - 544th Aerospace Reconnaissance Technical Wing, Omaha

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1. On 14 and 15 January, [redacted] and I visited Offutt STATINTL Omaha, in company with [redacted] The purpose of the trip was threefold; to inspect new equipment being used by the 544th Aerospace Reconnaissance Technical Wing, Omaha, to STATINTL to become familiar with the methods, procedures and products of the 544th, and to investigate the training program being formulated by the 3428th STATINTL Technical Training Squadron, DSIATP.

STATINTL 2. The entire day of 14 January was spent in the company of Capt. [redacted] of the 544th and was primarily taken up with inspection of two pieces of equipment which are of interest to NPIC. The first was the [redacted] Multi-Format Interpretation Station 970-1. The characteristics of this are as follows:

Drive system: Electrical, capable of handling up to four rolls of film driving each roll independently or coupled. May take two 70mm or two 5" STATINTL rolls side by side the entire length of the table with a loop-forming capability of approximately 90" between stereo pairs. Will take reels up to 8 inches in diameter.

Illumination: Light grid, continuously variable, maximum 7000 foot lamberts. Composed of two 12 x 15 inch light souces, independently variable STATINTL STATINTL with an auxiliary area 6"10" for chip viewing.

STATINTL Microscope: Built by [redacted] of optical components produced by [redacted] Magnification range 4-48X, resolution - 227 lines high contrast on center. Rhomboid separation, 1.5 to 10.5 inches.

Physical dimensions: Length, 66", width 32", height 32½", knee clearance 24½", eyepiece height above floor 45½", maximum eyepiece setback from front of table, 15".

STATINTL Comments: [redacted] thinks quite highly of this piece of equipment and it is being used daily by SAC interpreters at the 544th. He admits that it takes quite a bit of getting used to and a fairly extensive training

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period before analysts are skilled enough in its use to make it a time-saving work tool. I think that while it has applications for a situation where PI's are working constantly with roll film materials and require stereo rather than mono for all viewing, such a viewer would be a hindrance in PID since analysts would not use it constantly enough to become proficient in its operation. This is especially true in light of its rather limited capabilities. The low magnification range, somewhat limited resolution capabilities and 90 inch image separation do not offer enough to offset the disadvantages of its unwieldy and complex operation. PID has on order an [redacted] 552A viewer which STATINTL will exceed the capabilities of the 970-1 in many areas and should solve the problems posed by new collection systems in a superior manner.

3. The second piece of equipment inspected was the [redacted] Varyscan Viewer Mark 2. This is an instrument comparable to a [redacted] REar-Projection in concept but far superior in operation. The characteristics of this viewer are as follows:

Drive system: Electrical system with servo tension brakes. Speeds from a slow speed of 300ft/minute to a scan speed of .003 inches/second. Speed continously variable in direction of film travel, constant in traverse direction. Speed and direction controlled by joystick.

Image rotation: Complete 380 degree image rotation at constant speed. Joystick controlling film motion rotates with image.

Illumination: 30 foot-candles on the screen at 30X.

Physical dimensions: Length, 7½', width, 34", height 72". STATINTL

Comments: This appears to a great improvement over the [redacted] viewers which are presently in use in NPIC. The drive system in particular is excellent and provides the analyst with complete control of the film travel with one joystick. Improvements can be made such as an improved focus arrangement and a modified film loading system to make the loading STATINTL procedure more rapid. [redacted] has assured me since our return that these modifications are being made on the model being purchased by P&DS for NPIC evaluation.

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4. In addition to inspecting the above equipment, we visited the three branches of the 544th. These were the Scanning Branch headed by [redacted] the Discrimination Branch, headed by [redacted] and the Photo STATINTL STATINTL Support Branch, headed by [redacted] These names, except in the cases of the scanning branch are rather misleading and not indicative of the branch functions. The Discrimination Branch is similar to our Geo-Military Branch and deals with tactical weapons, MRBM's IRBM's and items of naval interest. The Photo Research branch deals with ICBM's and SAM's.

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5. In observing the operations of the 544th., the following procedures were considered to be most noteworthy:

a. The Scanning Branch maintains 5x8 file cards on all targets in which they are interested. These are stored in a centrally located [redacted] electric rotary file. Textual information is stored on the front of the card and a photographic print of the target is fixed to the back of the card for reference purposes.

b. A simple, but apparently effective, system is used for ordering enlargements of areas of interest. Several [redacted] oscilloscope cameras (Model F286) are available within the Branch. As the film is being scanned on a viewer, a P.I. merely makes a polaroid photo from the screen of the viewer. On the back of the print he writes the mission, pass, and frame and indicates the size of the enlargement he desires. This print is forwarded to a "support" component who writes up the necessary photo lab request and sends it, along with the polaroid print, to the lab. No priority system is used, however, [redacted] indicated that prints are normally delivered within two days. The prints are returned bearing a "legend" block which indicates the pertinent information.

c. We were impressed by the operating routine within the branch. The overhead lights are apparently kept at a low level all of the time, and the PI's work at their stations all day with hardly any interruptions from telephone calls, conferences, etc. Scanning teams are headed by an officer and are made up of airmen. The [redacted] M-5 micrometers are most sophisticated mensuaration tools available and these provide measurements within the accuracy necessary, according to [redacted] In general, these PI's do not enjoy the quantity or quality of equipment which is available to the PID analysts. [redacted] Zoom 70,s are used, in addition to the [redacted], small crank-up tables, Dual-power measuring microscopes, and Projected Scale micrometers were conspicious by their absence. The area occupied by this Branch is small and is an "open" area (vice cubicles) except for a small administrative office. Film chips are stored by Mission in "card" file cabinets. Preprinted gummed labels with all pertinent target information are automatically prepared by computer printout mechanism for attachment to the film chips when they are cut.

6. A portion of the 15th of January was spent with [redacted] of the 3428th Technical Training Squadron discussing the DSIATP (Defense Sensor Intelligence Applied Training Program). This is an advanced PI course using all system materials and designed to impart a broad spectrum of knowledge about the PI business rather than turning out people who can be substantively skilled in many areas. The first class will convene on 7

July and will run for 12 weeks. The class will be composed of 60 students, 30 enlisted and 30 officers who will be taught separately with slightly different curricula. The course will be open to all services and all other STATINTL government agencies who have system cleared personnel and a need for this STATINTL type of training and familiarization. The course will cover the following categories: History of Photography, Optics, Visual systems, Cameras, [redacted] Photogrammetry, Mensuration, Measuring Equipment, Cartography, Photographic Processing, and the Intelligence Data Handling System (IDHS). Substantively it will touch upon: Missiles, Industry, Electronics, AE, Naval Installations, Transportation, and Ground Forces. Field trips will be taken to NPIC, ACIC and FTD. No substantive field STATINTL trips are planned, except possibly some SAC facilities in the immediate area. Guest lecturers planned for the course include: Werner Von Braun, STATINTL Mr. Lundahl, [redacted] Dino STATINTL Dreglioni, [redacted] and others.

The equipment to be used for this course will include [redacted] light STATINTL STATINTL tables, [redacted] veiwers and [redacted] multi-format interpretation stations. At the end of the course, the students will form into 6 5-man teams and perform a week-long OAK on KH materials. The total floor-space for the school facilities measures 100 by 125 feet and is located in the old Martin Bomber plant on the base.

7. On the morning of the 15th we were given a tour of the Air Force Relocatable PI facility. This consists of a complex of 16 trailers, all of which are the same size. They are stressed for air-transport, provided with wheels for mobility and levelling jacks for positioning. Three of the trailers are PI cubicles housing a three man team, nine provide photo lab support facilities. The layout of the spaces is quite interesting but no new or unique equipment is involved. In contrast to the Navy ASC trailer system, this unit has been built entirely with off-the-shelf equipment. No computer or collateral support services are included as a part of the Air Force complex. Photographs of the outside of the trailers are attached showing the general configuration, size relationship and power supply.

8. I feel that this trip was most worthwhile in the insight it STATINTL STATINTL afforded us into the working procedures of thr 544th as well as the opportunity it gave us to see the new equipment. It is extremely helpful to be able to establish working relationships with personnel like [redacted] so that we can cooperate on equipment evaluations and share information regarding various systems with which we are familiar. In addition, it was very enlightening to see the various techniques employed by the PI's of the 544th in their readout and in their collateral support. Several ideas have evolved from this which will be tried in PID such as STATINTL the use of the [redacted] camera system to aid in ordering lab materials. I feel that it would be very useful to have PID branch chiefs, and Senior PI's visit the 544th from time to time to share information and to see how each of our operations could be improved.

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TRIP REPORT - Visit to 544th Aerospace Reconnaisance Squadron, SAC HDQ, Offut Air Force Base, Omaha, Neb.

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Members of the NPIC [redacted] visiting party included

[redacted]

A. Purpose of Visit

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1. To examine and evaluate [redacted] Variscan Viewer and the [redacted] Multiformat Viewing Light Table with [redacted] scope, both presently in limited operational use by the 544th ARS Research Center.

2. To see and be briefed on SAC's air transportable photo exploitation capability.

3. To make a conducted tour of the Research Center's photographic exploitation area and study their methodology of conducting an MCI read-out.

4. The group was also briefed on the advanced photo interpretation school (Defense Sensor Interpretation, Application, and Training Program), which is currently in the process of being organized at Offut Air Force Base.

B. Details of Visit

1. Thurs Jan 14 - the group was met by [redacted] who acted as STATINTL for SAC HDQ. He arranged for clearance and introduction to various members of the Research Center. [redacted] officer in charge of the MCI Branch,

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STATINTL ILLEGIB briefed th[redacted] and physical aspect of both the STATINTL [redacted] Variscan Viewer and the [redacted] Multiformat Viewing Table. After the briefing the group was invited to examine and operate both of the equip- STATINTL ment for own evaluation. The [redacted] Viewer appeared to be a fine piece of exquipment far superior to the 706 [redacted] presently used by NPIC. STATINTL The viewer has magnification of 3,6, 12, & 30X, and a capability of a 360 degree film rotation. When the film is running the platten is not in contact. The platten can be set for film contact but film cannot be moved until the platten is released. The 3X magnification permits full viewing of the full width of the 9" format film, a capability not possible STATINTL with the 706 [redacted] Viewer. The light source on the film image was good with little or no loss of light or distortion at the periphery of the viewing screen. Size of the viewer is 7" x 3'.

STATINTL The [redacted] Multiformat Viewing Light Table enable comparative viewing of ~~the~~ one or two rolls of 9" format film and two rolls of 70 mm film ~~mk~~ on the light table at the same time. By an arrangement of a series of rollers ~~mmmmmkk mmmgmmmm~~ an image on successive frames of a single roll of 9" film can be viewed steroptically. Films are moved by motor driven power with an automatic torque to keep flat on the table. The versitality of the ~~kmkkm~~ light table to ~~mpy~~ accommodate several rolls or types of film is a good feature for ILLEGIB comparative viewing of different mission photography. [redacted] The [redacted] Scope with STATINTL ~~mmmm~~ a stero rhomboids did not appear to have any advantage over the [redacted] STATINTL scope in use by NPIC.

The Strategic Air Relocatable Processing and Exploitation Facility is STATINTL SAC's air transportable photo exploitation capability. [redacted]

officer in charge of this facility briefed the group on the various components and their function which comprise this mobile facility. The entire facility is comprised of 11 vans containing the photo processing, reproduction, and exploitation equipment; and 2 flat-bed carriers which holds the power, heat, and water supply machinery. These units vary in weight from 14,000-29,000 lbs. Part of the facility can be operational from 4-6 hours after arrival at their destination.

Friday Jan 15 - Received a detailed briefing on the conduct of

STATINTL SAC's MCI readout from [redacted] They use a Unifile card to record the phto readout and photo reference. This card is analogous to the target blip sheets used by NPIC. Unless there is a significant change an all-source capsule readout is repeated for each mission, even though the target was only identifiable. In an all-source readout it is not possible to determine what portion was derived from the photography. On the reverse side of the Unifile card, which is 8" x 5", is pasted a card size enlargement of the target to be used primarily for recognition of the

ILLEGIB target. The [redacted] mission readout publication is titled "Photo Reconnaisance Index (PRI). The primary targets readout on each mission consist of offensive and defensive capability targets(all missiles, all significant air facility).

ILLEGIB [redacted] The group received a briefing and tour of other photo exploitation capabilities of the Research Center. These consisted of the Collation Branch, Photo Support Branch, and

ILLEGIB The Discrimination Branch. Both of the latter branches are responsible for [redacted] producing detailed studies against specific requests, and have produced and maintain the following publications:

"Sino-Soviet Bloc SAM Defenses", "Soviet Surface to Surface Missile Sites", "Sino-Soviet Bloc Complexes" (criteria of city complex of 50,000 or more population).

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Briefing on the advanced photo interpretation school (Defense, Sensor Interpretation, Application, and Training Program) was given by Lt. Col [redacted] The projected date on the opening of the school for the first class is 7 Jul 1965. The school will utilize system material, in addition to all of the other sensor type of reconnaisance materials. The course will be of 12 week duration for officers and civilians and 11 weeks for enlisted personnel. All military personnel must be a graduate of a basic PI school and civilians GS-9 or higher with PI background. The capacity of the school will 30 officers and 30 enlisted personnel. The school does not contemplate accepting civilians for the first two class.

C. Conclusion

The visit to the Research Center was most beneficial from the point of view of having an opportunity to view and evaluate new equipment, study the methodology of employed by SAC in an operation similiar to our and MCI, to see their air transportable photo exploitation facility.